

Abstract

The illuminating beam 4 emitted from the cathode 1 is incident on a deflector 3. In a state in which a voltage is applied to the deflector 3, the optical path of the illuminating beam 4 is altered by the deflector 3; the illuminating beam 4 then passes through a common electron optical system 7, and illuminates the surface of the sample 6. In cases where no voltage is applied to the deflector 3, the illuminating beam 4 passes directly through the deflector 3, and is absorbed by an electron absorbing plate 17. The illuminating beam 4 is attenuated when it passes through the common electron optical system 7, so that the energy of this beam 4 is close to 0 [eV] at the point in time at which the beam 4 reaches the surface of the sample 6. When the illuminating beam 4 is incident on the sample 6, reflected electrons 8 are generated from the sample 6. These reflected electrons 8 pass through the common electron optical system 7, and in a case where no voltage is applied to the deflector 3, these reflected electrons 8 pass through the image focusing electron optical system 9, so that the electrons are projected onto an MCP detector 10.